

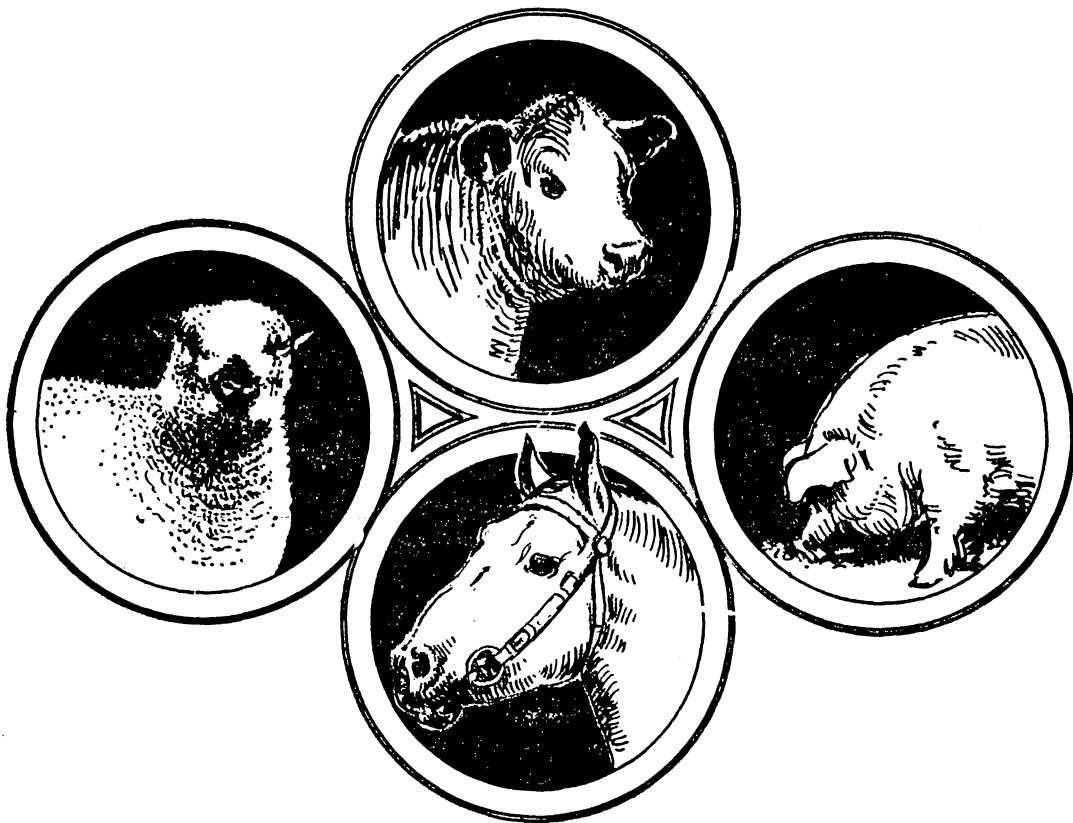
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# *The* EXTENSION ANIMAL HUSBANDMAN



UNITED STATES DEPARTMENT  
OF AGRICULTURE  
WASHINGTON,  
D.C.

Serial No. 16

December, 1929.

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Knowledge is the treasure, but judgment  
the treasurer of a wise man. He that hath  
more knowledge than judgment is made for  
another man's use more than his own. It  
can not be a good constitution where the  
appetite is great and the digestion weak.  
Less knowledge than judgment will always  
have the advantage upon the injudicious  
knowing man.

-- William Penn.

All communications regarding this publication,  
which is issued quarterly, should be addressed to:

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Washington, D. C.



UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

THE EXTENSION ANIMAL HUSBANDMAN

Issued by the Bureau of Animal Industry and the  
Office of Cooperative Extension Work, Cooperating.

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Serial Number 16 --

-- December, 1929.

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## ANIMAL NUTRITION

by

Paul E. Howe, U. S. Bureau of Animal Industry.

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The pressing problem with the farmer is, to be able to feed animals to the best advantage on crops produced on his own farm and especially to use the surpluses or by-products that he may have. The effective use of these feeds requires a knowledge of their nutritive value, the contribution they will make toward a well-balanced ration, and, equally important, the extent to which they will furnish or fail to furnish certain of the accessory food factors such as vitamins and inorganic salts. Such knowledge is necessary in combining feeds and in making purchases of supplementary feeds to cover deficiencies that may exist in the feeds at hand.

Supplementary feeds are often by-products of industry, possessing nutritive value of a particular kind and are apt to be totally deficient in one or more particulars. Such separations of nutrients occur on the farm as well as in the factory since by the separation of the seed from the leaf there is refinement in relation to the original plant. The manufacturer, however, often goes farther and removes parts of the seeds, returning the remainder for use as feed, such for example as the production of corn oil and corn gluten cake. Concentrated feeds offer unusual opportunities for correcting deficiencies but when used to excess may create rather than correct deficiencies. Recent research in nutrition is indicating the need for a knowledge of the effect of excessive as well as insufficient amounts of nutrients and the interrelation of one nutrient to another.

From a production point of view farm animals are fed for the products they will yield, or conversely to transform rough feeds and surplus feeds into human food or other products useful to man. In these days of increased costs and extensive purchase of feeds, the quality of the ultimate product is of great importance because the added price commanded by extra quality often must be depended upon to show any profits at all.

Protein has always constituted an important problem in feeding. What are the relative efficiencies of the various proteins and how do they supplement each other? What are the minimum

as well as the most desirable amounts of protein for maintenance and growth; for females during pregnancy or lactation? Answers to these questions are important not only because protein is an essential feedstuff, but because feeds high in protein are usually the most expensive ones. The solution of the problems are complicated by the variability of proteins from different sources. The effectiveness of the protein of a feed may be greater when fed in combination with protein of another source than when fed alone.

Vitamins and inorganic salts play an important part in the successful feeding of animals. Experimental work is indicating that it is not sufficient to study these various substances individually without reference to their relation to other constituents of the ration. An example is found in the case of calcium and phosphorus and the antirachitic vitamin or sunlight (ultraviolet light) in which the need for the vitamin is more important when there is a marked excess of either calcium or phosphorus than where these elements are in their proper proportions. Likewise, results of work on nutritional anemia indicate that the utilization of iron is affected by the presence or absence of copper and possibly manganese.

Experimental work on those constituents of the ration which have a specific effect is conducted in such a way as to emphasize their detrimental effects and to exclude as much as possible the simultaneous effects of other factors. In actual feeding practice a number of factors may be concerned or the quantity of the constituent may be low, not sufficient to cause the marked results obtained experimentally but enough in the long run to produce untoward results. It is important to know the effect of such sublethal quantities of the various food constituents. As the various constituents of the ration that influence the well being and development of animals are recognized and means found for concentrating them, there arises the danger that they will be fed in excessive amounts and exert harmful effects. This has been found to be true for the antirachitic vitamins and is also true for certain of the inorganic salts.

The influence of the vitamin and mineral deficiencies is particularly marked in young growing animals. Suckling animals are protected to a certain extent by the fact that the mother tends to draw upon her own reserves to supply her young with adequate milk. There are limits, however, to her ability to deplete her reserves and continue to function normally; not only as a producer of food but of other young. It is important to know the extent to which the nutrition of the mother affects the development of the young

and how much such effects modify subsequent development.

Following are some of the special problems which we are studying:

- (a) The skeletal development of swine, including the teeth, in which high and low-calcium diets are fed to pregnant sows and growing pigs. This investigation is in cooperation with the National Dental Society and Johns Hopkins University which are especially interested in the development of teeth and the application of the results to man.
  - (b) The nutritive value of barley, including especially the value of spoiled barley and of different grades of barley.
  - (c) The growth and fattening of poultry in which particular attention is given not only to the best ration for growth but also to the fattening ability of the birds and the quality of the carcasses produced.
  - (d) The nutritive value of goat's milk and the effect of winter and summer feeding on the composition of goat's milk. Such work is in support of a project relating to the value of goat's milk for infant feeding.
  - (e) The protein and mineral requirements of the growing chick and the laying hen.
  - (f) The relation of the nature of the ration to the character of the fat deposited in swine. This work is part of a cooperative project with various agricultural experiment stations on the quality of pork. The study includes not only the specific effects of feeds but also methods of feeding.
  - (g) The nutritive value of pastures and how it is influenced by fertilizing, in cooperation with the Bureau of Plant Industry.
- 

The most effective method of extension teaching is the one that starts the farmer at the job of intelligent study of his own problems and at the same time affords him some help at critical times as he goes along. — Rex Beresford.

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## WHAT'S NEW IN THE STATES

### Washington

J. K. Ford resigned the position of extension specialist in animal husbandry, effective January 1, to accept employment with the C. M. & St. P. Railway as agricultural agent at Miles City, Mont.

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### Colorado

A. C. Allen, assistant animal husbandry specialist in charge of swine work, was made assistant state club leader on December 1.

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### Michigan

D. H. La Voi has been appointed animal husbandry specialist to succeed V. A. Freeman, who has transferred to research and resident teaching duties. Mr. La Voi was formerly connected with the Northwest School and Station of the University of Minnesota at Crookston.

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### Oklahoma

Paul G. Adams again had the honor of coaching the winning 4-H Club judging team at the International Live Stock Exposition at Chicago.

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### Tennessee

Farmers and 4-H Club members from 25 counties exhibited 502 head of fat cattle at the annual show and sale at Nashville November 12 - 13. The club calves, 235 in number, sold for an average price of \$14. per hundredweight, while the cattle owned by farmers brought \$13.

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### Kentucky

The eighth annual fat cattle show was held at the Bourbon Stock Yards, Louisville, with 4-H Club and Smith-Hughes entries comprising the bulk of exhibits, although the grand champion car-load award went to an adult exhibitor for the first time in five years. Prices paid in the sale were generally satisfactory and averaged about \$14. per hundredweight.

R. C. Miller, sheep specialist, recently returned from a trip to the British Isles where he selected an importation of Hampshires, Southdowns and Ryelands for Kentucky flock owners.

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### Maryland

A fat cattle show and sale was inaugurated at the Baltimore Stock Yards October 22 - 24. About 1800 head of cattle were on exhibition. Classifications for both adults and juniors were provided and competition was open to the world. The grand champion single steer was owned by a Virginia 4-H Club member and brought \$1.07 per pound.

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### Idaho

The Idaho Wool Growers' Association for several years has held sales of Idaho-bred rams for the dual purpose of providing a satisfactory outlet for breeders' surpluses and a medium through which prospective purchasers may buy what they need. A summer sale for the convenience of those who breed early and a fall sale for those who breed later, is the present custom. In the 1929 summer sale 933 rams were sold at an average price of about \$42. per head. Hampshires made up the bulk of the offering. The fall sale distributed 711 rams at approximately the same values. I have served as a member of the sales committee of five, whose duty it is to make selections for the sale and otherwise maintain a high standard in the animals offered and in selling methods.

-- E. F. Rinehart.

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### Texas

Geo. W. Barnes, extension specialist in range livestock, officiated as judge in the recent Christmas week livestock show held at Los Angeles, California.

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## Utah

The third annual Intermountain Horse Pulling Contest was held under the auspices of the Utah State Fair Association, the Utah Agricultural College cooperating, with 23 teams competing. The official dynamometer was used. Several new State records were made. -- K. C. Ikeler.

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## Mississippi

For several years a county agents' livestock judging contest has been a feature of our annual conference of State extension workers. Prizes, consisting of cash, cups and medals, have been provided by various commercial agencies. Classes of mules, hogs, sheep, beef cattle, dairy cattle and poultry are presented for placings and reasons. The State extension subject-matter specialists act as superintendents of the contest. We feel that it has been a very worth while undertaking. -- Paul F. Newell.

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## Alabama

Our main type of commercial beef production is based on early March calves from native cows and by purebred beef bulls, sold in October, carrying their milk fat at a weight of about 400 pounds. During the summer three carloads of registered Hereford bulls from Texas were placed in the prairie section of western Alabama, as a step in our program. We are also encouraging beef cattle production through the 4-H beef-calf clubs and recently held our State show at Montgomery with about 25 boys, with their calves, in attendance. -- F. W. Burns.

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## Indiana

The first multiple hitch plowing contest ever held was staged in Clinton County on October 31. In spite of the fact that it rained most of the day, (See "Plowin' in the Rain" by Walter Miller in December Breeders Gazette. Ed. Note.) between 1,200 and 1,500 farmers assembled to watch the event. There were three contestants in each of the four classes for four, five, six and eight horse teams. This contest was the climax of a season's effort in promoting big hitches in that county and provided an almost ideal set-up for effective extension teaching in that the contestants demonstrated, and spectators learned without either realizing they were doing so. -- P. T. Brown.

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## UNIO

We have been putting on several three-day cattle feeders schools during the fall and winter months. They have all been held in the evening beginning promptly at 7:30 P.M., and ending at exactly 9:00 P.M. The attendance, almost without exception increased each succeeding night, which I attribute largely to our custom of starting and stopping on time. In these schools the subject-matter is divided into three general phases, one of which is presented each evening.

The first night, general problems of the feeder, such as types and grades of cattle, effect of age on gains, steers versus heifers, time to fill feed lots, shipping problems and feed-lot management, including shelter, water supply, bedding, etc., are discussed.

The second night, feeds and feeding are taken up. The point on which chief emphasis is placed is protein supplements. Various kinds of feeds and rations suited to individual cases are discussed.

The third evening is given up entirely to marketing and this subject in the main is handled by one of our marketing specialists.

During each session from 15 to 20 minutes are set aside for questions and open discussion.

In 1928, we put on only two of these schools in different counties. Both asked for return engagements this year. We have just completed (November 19) a school in Wood County, one of the largest cattle feeding sections in the United States, and their attendance was 72 the first night, 110 the second, and 76 the third and it rained hard all three evenings. -- L. P. McCann.

## West Virginia

Our 1929 purebred-sire campaign resulted in the elimination of 163 scrub bulls, 123 scrub rams and 35 scrub boars and the placing of 121 purebred bulls, 493 purebred rams and 64 purebred boars, or a total movement involving 999 sires. Pendleton County made the best showing with 291 animals eliminated and placed, with Harrison County second, Ritchie County third, and Lewis County fourth. The West Virginia Livestock Shippers Association offers cash prizes of \$60, \$50, and \$40 to the three counties making the best records. This money is to be used in paying the expenses of the county agents from the winning counties to the International Live Stock Exposition. In case a county agent does not wish to take advantage of the trip, he automatically forfeits his opportunity to the next highest man. -- Benj. F. Creech.

## Nebraska

During October and the fore part of November a special educational train on swine production was operated over the Burlington Lines by our Extension Service. The train was composed of six exhibit cars featuring hog type, sanitation, and feeding. The exhibits were viewed by 108,063 people at the 63 regular stops--an average of 1,715 per stop. The train was also set in at the Ak-Sar-Ben Livestock exhibition at Omaha, November 2 - 7. During that time 16,272 people viewed the exhibits making a total of 124,345 who had studied them.

From a standpoint of interest and cost of the number of people reached, the project was considered highly successful. Only time will determine the effectiveness of this work. Follow-up meetings and short courses in the various communities are being planned.

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Nebraska's 1,265 baby beef club members sold the last of their 1,810 calves at the Ak-Sar-Ben Livestock Show in Omaha. It was a profitable year for the boys and they are requesting considerable assistance in selecting their 1930 show prospects. An increased enrollment is expected for 1930.

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Twenty-two Nebraska hog men have "weighed in" completing their records for the 1929 Nebraska Pig Crop Contest. The contest which is supervised by the Nebraska Extension Service closed December 1 and has as its object the increase in the efficiency of Nebraska hog production by cutting out the leaks due to poor feeding, disease, etc. Nebraska hog men are exhibiting a good deal of interest in the outcome of this year's contest. -- O. O. Waggener.

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## Minnesota

The twelfth annual junior livestock show was held at South St. Paul, November 11-14, with a representation of 759 boys and girls from 76 counties of the State exhibiting a total of approximately 1,400 head of baby beeves, hogs, sheep and poultry. The animal exhibit consisted of 271 calves, 213 lambs and 125 hogs, all of which were winners in their respective counties.

Everything excepting the breeding pens of poultry was sold at auction. The total receipts approached \$55,000, the grand champion steer bringing \$1.21-1/2 per pound, the grand champion barrow 41 cents per pound and the grand champion lamb, \$3.00 per pound.

-- H. G. Zavoral.

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## Arkansas

In our early lamb area for the coming year we are proposing county lamb shows and cooperative shipments of the lambs. Prizes for such shows are being provided by certain public-spirited agencies. The following classification is being recommended:

- Class I - Pen of 10 lambs - Five prizes of from \$15 to \$5.
- " II - " " 3 " " " " \$5 to \$1.
- " III - Single lambs - Six Prizes of from \$3 to \$50.

Only ewe and wether lambs will be allowed to compete and all lambs must be docked. -- M. W. Muldrow.

## Iowa

Last summer eight Henry County swine growers checked up on the efficiency of their breeding herds as producers of market pork. The test, the first of its kind, was conducted cooperatively. It was carried out with the same idea in mind and after much the same plan as the corn-yield test plots that have done so much to stimulate practical study of seed corn and to increase corn yields in Iowa.

Four pigs, one from each of four litters, were selected as a sample from each herd. These pigs were ear-marked, weighed, their birth dates and breeding recorded, and started on feed June 5th. They were around 12 weeks of age and averaged 36 pounds when the test started. They were all self-fed together on corn, a protein mixture of two parts tankage and one part oil meal, and a simple mineral mixture. They ran in 4 acres of good alfalfa and had free access to fresh water. A feed record was kept for the lot, but the purpose of the test was to compare the different pigs and the different herd samples or lots of 4 pigs, in their ability to respond to feed.

The value of such a comparison is founded on the established fact that, given the same opportunity, the pig or lot of pigs that gains most rapidly invariably makes the cheapest gains. Moreover, the variation in cost is in much the same ratio as the variation in rate of gain.

After three months feeding the pigs were again weighed, and gain per day figured for each pig and each group of pigs. The slowest gaining group averaged 1.26 pounds per day per pig. The best gaining group made 1.51 pounds or nearly 20 per cent more. There were even wider differences between individual pigs, even in the same group.

At the close of the feeding test the pigs were slaughtered and careful yield and cutting tests made at the Morrell plant in Ottumwa, in order to check up on how well the various lots fulfilled market requirements. Yield in cash to the packer per 100 pounds live weight varied from \$10.64 in the low lot to \$11.15 in the high yielding group. The fastest gaining lot was not the high yielding one, though the high yielding lot was one of the better ones from the standpoint of rapid gain. Shifting seasonal market conditions affect the cash yield per 100 pounds live weight so much that those figures for a single period should not be accepted at too high a value from the producer's standpoint.

Study of the individual pigs from the standpoint of type and its relation to rate of gain seems to indicate that the pigs of medium to big type gained most rapidly, but that on the whole the ability to gain rapidly depends to a large degree on inherent factors pretty well outside the matter of type. Of two pigs of seemingly identical type one developed into the fastest gaining pig in the test, making 1.82 pounds gain per day, and the other was the slowest but one in the entire lot, making but 1.08 pounds per day. Both were from the same farm, were sired by the same boar and showed no apparent difference in health on careful inspection both before and after slaughter.

The value of such a test depends largely on the use made of it. If taken as a starting point for herd building and improvement it can be of great value. It shows the man who puts his pigs into the test, just how they stand in comparison with those of his neighbors. Possibly its chief value lies in the interest it arouses in the study of his own hogs by each farmer. This interest extends to many not actually in the test. At least the first test conducted proved so satisfactory and interesting to the men who were in it that they voted to continue it for another year and a number who were not in this year have asked to be included in the 1930 plans. Several other counties are planning similar tests.

Plans for carrying out such a test can be secured by writing the Extension Service, Animal Husbandry Division, at Ames.

— Rex Beresford.

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"There is in every animal's eye a dim image and gleam of humanity, a flash of strange light through which their life looks out and up to our great mystery of command over them, and claims the fellowship of the creature if not of the soul." — Ruskin.

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## SIX YEARS' EXPERIENCE IN GRAIN-GRASS

### BEEF PRODUCTION

by

L. A. Richardson, Tennessee Extension Service.

- - -

In the fall of 1923, J. H. Dugger, of Greene County, Tennessee, who had always followed the practice of producing feeder steers, decided that the margin had become too narrow on feeders. In fact, since 1921 his feeders had netted a loss. During the six years since then he has finished 162 head of cattle or an average of 27 head annually. These cattle averaged 997 pounds when bought and cost \$7.64 per hundredweight.

The winter feeding period covered 115 days during which time the steers put on an average of 63 pounds at a cost of \$15.14 per animal. The ration consisted of low-grade roughage such as shredded stover, straw and hay of little merchantable value. For the past four years blackstrap molasses has been diluted at the ratio of 1 gallon to 3 or 4 of water and sprinkled over the roughage. In actual weight this was used at the ratio of 1/3 to 1/2 pound daily. The molasses made the roughage much more palatable, and in addition the cattle received from 1-1/2 to 2 pounds of cottonseed meal per day. In March corn was included so that when the cattle were turned to grass the 10th of April they were receiving 4-1/2 pounds of corn and two pounds of meal per day. On grass it has been found economical to crush the corn into corn-cob-and-shuck meal.

Mr. Dugger has never attached much value to the roughages used in winter. His farm is located 14 miles from the railroad and he has no market for such except through his cattle. In compiling the feeding records from year to year a value of from \$4 to \$12 per ton has been placed on the various roughages used. The cottonseed meal and corn have been charged at market prices each year.

The summer feeding has consisted of a period of 125 days. In the six years the cattle have put on an average of 280 pounds or a daily gain of 2.24 pounds. The cost of the summer gains has averaged \$24.15, or \$8.62 per hundredweight.

Pasture was rated at 5 cents per day and the corn, or corn and barley with cottonseed meal at the market value.

The cattle have been fed once a day only, and that in the evening. In the past five years over 7,000 head of cattle have been finished on pasture supplemented with grain in this State. During this time close observation has established three things, namely: Cattle carrying quality should be used in summer finishing. They should be mature, at least two years old. To make the best use of the grass and at the same time produce economical gains, feeding once a day has proved to be the most satisfactory.

In the feeding work on the Dugger farm the ration was increased after the cattle have been on grass two to three weeks. The amount of the increase is influenced somewhat by the abundance of grass and the pasture season. In some years the ration has been raised to 14 pounds of grain plus the two pounds of meal which has remained fairly constant with the age of the cattle fed. The average daily feed of grain, however, for the 125-day period during the six years has been nine to ten pounds on this particular farm.

Here it may be of interest to mention that, in March, Mr. Dugger made an application of 250 pounds of superphosphate and 100 pounds of nitrate of soda per acre on the 75-acre boundary over which the cattle graze.

The increase in gain over the price over a five-year period amounted to 34 pounds per steer or at the price which the cattle sold, returned a greater net value of \$4.50 per animal. Since the pasture management phase of the work is being taken up at present, larger returns are expected in the future.

In the six years the cattle have been shipped to Jersey City four times, Lancaster once and Knoxville once. The time of delivery has been from the 10th to 15th of August until this year when they were held until early September. At the time of delivery to market the necessary selling price at the farm to break even has been \$8.54 per hundredweight. The net return to the producer for the period has been \$11.03 per hundredweight. The marketing cost on the eastern market has varied from \$1.17 to \$1.30 per hundredweight. This absorbs a drift of 55 to 60 pounds.

In checking through the market reports on the Dugger sales I quote from the Jersey City official report of September 16th.



"Jersey City, N. J.  
September 16, 1929.

There were forty-two loads of steers on sale here today. Chicago reported 24,000 cattle. Market was stronger on a few loads of choice heavy cattle, uneven on the balance. Two loads of choice corn-fed-on-grass Tennessee cattle were sold as follows:

16 steers	1,505 lbs.	- \$14.50
16 "	1,475 lbs.	- 14.40

The next highest prices were \$13.75 per hundredweight."

The above conveys something of the grade and quality of cattle Mr. Dugger selects for his grass-grain feeding.

In the six years, four field meetings have been held on this farm. During this time 2,000 people have been in attendance. The 1929 meeting on August 2 climaxed the others as Governor Henry Horton and W. J. Fitts, State Commissioner of Agriculture, came to spend the day. Fully a thousand people saw the cattle and the pasture that day.

The program under which our beef-production work in the eastern part of the State is being conducted contains the following recommendations:

- (1) Use a purebred beef bull on all cows maintained for beef production.
- (2) Keep either purebred or high grade cows for baby-beef production.
- (3) Sell calves of inferior quality at the veal age.
- (4) Give cattle better care in the way of feed and shelter during the winter months.
- (5) Give animals of inferior quality a short feed and put them on the winter market.
- (6) Summer finish cattle on grass supplemented with grain where possible.
- (7) When cow herds are kept finish calves under one year of age for the slaughter market as baby beeves.
- (8) Improve pastures and use legume hay for winter roughage.

### Five Years' Data on Mr. Dugger's Operations

Average length winter feeding period .....109 days

" " summer " " .....120 days

#### Weights:

Average fall weight of cattle .....	959 lbs.
" spring " " " .....	1026 "
" summer " " " .....	1287 "
" total gain " " .....	328 "
" winter gain " " .....	67 "
" summer gain " " .....	261 "
" daily gain in summer .....	2.18 "

#### Costs:

Average initial cost of cattle at \$.73 per cwt.....	\$66.51
" cost of winter feeding .....	15.34
" " " summer " .....	21.29
" total cost of feeding .....	36.63
" " " per animal .....	103.14

Average cost per cwt. summer finishing ..... 8.17

Necessary selling price at farm to break even ..... 8.01

Average net price per cwt. received at farm ..... 10.56

Total value per animal .....135.90

Net profit per animal ..... 32.76

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### HOW MAN LEARNS

"By a method in education is meant the way in which a teacher puts educative agents and means to work upon human nature so as to produce some desired result. Man, natively, never does something for nothing. He acts only to satisfy his wants; he learns only those reactions which contribute to the fulfillment of his urges. Throughout his life, however sophisticated he may become, man's learning is motivated by his urges. Genuine wants must be enlisted to get him to learn at all, and they must be used to guide and sustain his learning. The primary law in all human control is to utilize man's wants as a means of getting him to make the desired response and to utilize his wants again to make the response satisfying." -- From "Elementary Principles of Education," by Thorndike and Gates.

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## THE IOWA PIG-CROP SPECIAL

by

Rex Beresford, Iowa Extension Service.

The Iowa Pig-Crop Special was the most successful demonstration train ever staged by the Iowa Extension Service from the standpoint of number of people reached and interest aroused. In 64 stops it was visited by over 83,000 people.

Plans were started for this train six months before it was run. Exhibits were carefully worked out in the form of a plan for pork production in Iowa, and everything carried on the train was a part of this Iowa pig-crop plan.

Advance work and publicity in the communities to be visited was started in some cases two months before the arrival of the train. In each community a committee was selected by the county agent and representatives of other organizations, and before final arrangements were made to stop at any point, a representative of the Extension Service and of the railway met with this local committee and plans were worked out for handling the train in that community. Posters and publicity matter were furnished to the local committees, but all cost of advertising and other incidental expenses of publicity were assumed by the local communities.

Most of the local communities did a splendid job of preparation for the train and a large part of the success of the train was due to their efforts.

The train consisted of four cars in all - two were coaches fitted up for panel exhibits, one was a flat car carrying equipment for hog raising, and one was a horse car fitted with pens for live hogs.

The idea of the train was not to promote the production of more hogs, but to promote cheaper and more efficient hog production in order to secure more profit. The points outlined and explained in the panel exhibits included: First, fitting the pig crop to the farm or sound planning of the hog business; second, securing more economical gains by feeding efficiently and economically; third, building up good breeding herds by careful selection for production and type; and fourth, the prevention of losses by proper management and sanitation. In short, the Iowa pig-crop plan consisted of four words: Plan, Select, Feed and Manage.

Three of the top herds in the Iowa Pig-Crop Contest were represented by pens of barrows in the live-hog car on the train. High-producing breeding animals were carried for the purpose of showing producing type. The records secured in these herds were shown on placards, and the methods used by the men in producing these hogs were outlined. The fact that all of these herds were produced under the plan outlined in the other exhibit cars helped to clinch the story.

A pamphlet consisting entirely of pictures of exhibits on the train and a short explanation of the points demonstrated by each part of the exhibit, was distributed from the train. These were given only to farmers who were sufficiently interested to ask for them and even so restricted, 25,000 copies were handed out. Nearly an equal number of registration cards were signed by farmers interested in securing other bulletins and publications from the extension service.

The train was operated for 11 days on the Burlington, making 33 stops with a total attendance of 47,694 people. The exhibits were then transferred to Northwestern equipment and again operated for 10-1/2 days, making 31 stops with a total attendance of 37,249 people. The attendance at this train was only one indication of the interest it aroused. Much publicity was given the train by the newspapers and radio stations of the State, and even outside of it.

All the talk and publicity and the train itself have we believe helped immensely in focusing the attention of the swine raisers of Iowa on the essential points of efficient pork production in a way that has never been done before. The train was planned, of course, merely as a supplementary piece of work in connection with our regular swine project in the State.

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#### Don't Quit

"When things go wrong as they sometimes will,  
When the road you are trudging seems all up hill,  
When the funds are low and the debts are high  
And you want to smile but you have to sigh  
When the care is pressing you down a bit,  
Rest, if you must, but don't you quit."

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"Everyong likes his own independence; few respect it in others."

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# MINNESOTA LAMB PRODUCTION CONTESTS, 1929

by

W. E. Morris, Minnesota Extension Service.

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The season's results in both our adult and junior lamb production contests were quite satisfactory. A larger percentage of the contestants completed the projects than was the case last year. The winner in this year's junior project averaged 185.3 pounds of lamb per ewe as compared with last year's high mark of 162.9 pounds. While in the adult class, this year's winner produced 128.2 pounds, as against 117.4 in 1928.

The higher records being made and the growing interest in the projects are an indication of the soundness of the undertaking and we propose to continue effort along similar lines for another year.

The statistical results follow:

## Minnesota Lamb Production Contest, 1929

<u>Flocks of 25 - 50 Ewes</u>					
<u>Name</u>	<u>County</u>	<u>No. ewes</u>	<u>No. lambs</u>	<u>Av. wt. per lamb</u>	<u>Av. wt. of lamb per ewe</u>
				lbs.	lbs.
Everett Wadsworth	Polk	43	63	82.2	120.4
Frank Passi	Lake of Woods	49	39	84.9	119.6
Martin Bergan	" " "	36	57	73	115.1
N. N. Kenneberg	Houston	33	44	85.4	113.8
Freeman Allen	Pennington	30	43	75.1	107.6
Geo. Woollett	Lake of Woods	26	36	76	105
H. W. Turner	Fillmore	35	50	70.9	101.3
N. J. Mjelde	Polk	40	54	73.3	99.
A. C. Bunge	Houston	50	54	83.6	90.2

<u>Flocks of 51 - 100 Ewes</u>					
Chas. Mann	Houston	51	76	86.0	128.2
K. O. Johnson	Koochiching	52	72	85.57	118.5
Ward Bros.	Kittson	68	95	79.5	111.0
Andrew Johnstad	Polk	60	96	63.6	101.9
Al Liebold	Fillmore	70	90	77.6	99.8
S. H. Bodeen	Rock	79	108	72.0	98.4
F. A. Kruse	Lincoln	75	97	73.8	95.4

Flocks of 51 - 100 Ewes (Continued)

<u>Name</u>	<u>County</u>	<u>No. Ewes</u>	<u>No. Lambs</u>	<u>Av. Wt.</u>	<u>Av. Wt. of</u>
				<u>per lamb</u>	<u>lamb per ewe</u>
				lbs.	lbs.
E. H. King	Fillmore	63	70	79.0	87.8
Will Liebold	"	70	70	86.5	86.5
I. E. Shisler	Aitkin	65	79	69.2	84.1

Flocks of 101 or more Ewes

Wm. Ash	Kittson	165	196	80.	95.
Sever Trehus	Houston	101	119	70.7	83.3

Champion Flock Master -- Chas. Mann, Houston County  
 Percentage of Lambs Born - 160  
 " " " Saved - 149

Advanced Junior Sheep Club Project, 1929

<u>Name</u>	<u>County</u>	<u>No. Ewes</u>	<u>No. Lambs</u>	<u>Av. Wt.</u>	<u>Av. Wt. of</u>
				<u>per lamb</u>	<u>lamb per ewe</u>
				lbs.	lbs.
Harold G. Getchell	Douglas	10	20	92.7	185.3
Lawrence Ward	Kittson	10	17	92	156.4
Erwin Howard	Stevens	10	16	93	148.75
Lois Padelford	Mower	10	18	76.6	137.8
Marvin Nelson	Stevens	10	16	83.6	133.75
Wm. Sharkey	Le Sueur	10	19	68.7	130.6
Ernest Clouse	Renville	10	16	76.4	122.3
Freeman Allen, Jr.	Pennington	10	14	87.3	122.2
Nettie Eklund	Stevens	10	12	86.6	103.95
Doris Vesterby	Stevens	10	10	100.0	100.0
Loranz Anton	Pennington	10	10	80.7	80.7
Frances Beller	Pennington	10	8	79.2	70.3

ADVERTISEMENT'S ARTFUL AID

Bill Nye, the humorist, once had a cow to sell, the story goes, and advertised her as follows: "Owing to my ill health, I will sell at my residence in township 19, one plush raspberry cow, aged eight years. She is of undoubted courage and gives milk frequently. To a man who does not fear death in any form she would be a great boon. She is very much attached to her present home with a stay-chain, but she will be sold to anyone who will agree to treat her right. She is one-fourth Shorthorn and three-fourths hyena. I will also throw in a double-barreled shotgun which goes with her. In May she usually goes away for a week or two and returns with a tall red calf with wobbly legs. Her name is Rose. I would rather sell her to a non-resident. -- Watertown (S.D.) Herald.

### WHAT THE EXTENSION SPECIALIST SHOULD KNOW

1. His State -- her general agricultural resources and possibilities, and her problems.
2. The facts determined by all State and Federal experiment stations that are applicable to his state.
3. How to interpret these facts, bulletins, reports, in language understandable and appealing to the farmer.
4. How to organize and conduct demonstrations so that they will arouse attention, be convincing and adapted to the community.
5. The State program of work and assist in its making or further development.
6. The field of other specialists and how to correlate his work and to cooperate with them in making county and state programs effective.
7. The county programs and assist the county agent in reaching the goals set by making his work effective but not detrimental to phases carried on within the county by other specialists.
8. How to combine efforts with other specialists in planning a cooperative project upon which all can work and further agricultural interests.
9. How to enlist the services of all organizations in disseminating information in furthering good practices for they are as keenly interested as he in the community's welfare.
10. The value of assisting other extension employees by furnishing them the latest subject-matter information from the research department and to carry to the subject-matter department all unanswered questions which he gathers in the field as a basis for future studies.
11. The value of keeping accurate records which show growth and development, and serve as a basis for future demonstrations, reports and publicity.
12. The value of publicity and how to assist the county agent in preparing publicity and securing the cooperation of editors in its publication.

12. That his work is a part of that contribution to a general plan for the betterment of rural life and living and to remember at all times that community welfare should be his goal, not the promotion of his own project.

-- W. H. Brokaw, Director  
Nebraska Extension Service.

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The COW, the PIG, the HEN

by Dr. A. H. Upham.

The farmer smiled as he passed them by,  
The cow and the pig and the hen;  
For the price of wheat had gone sky-high,  
And the cow and the pig and the hen  
They ate up the grain he could sell at the mill,  
They needed his care when nights were chill,  
He swore of them all he'd had his fill,  
The cow and the pig and the hen.

These barnyard cattle had had their day,  
The cow and the pig and the hen;  
He could get thirty bones for a ton of hay--  
No need for the sow or the hen;  
He never would milk another cow,  
He hated the sight of a grunting sow,  
And raising chickens was work for the frau,  
Goodbye to the cow and the hen.

They gave no heed to his jeer or frown,  
The cow and the pig and the hen;  
Whatever goes up, said they, comes down,  
The wise old cow and the hen.  
The hen laid eggs the winter through,  
The cow gave milk and the piggy grew,  
But hay dropped down from thirty to two--  
Oh, the cow, the pig and the hen!

Now he sits and sighs, as he counts the cost,  
For the cow and the pig and the hen.  
He almost cries for the milk he's lost,  
The cow and the pig and the hen;  
He'd tend them gladly in mud and rain,  
And lessen his acres of hay and grain,  
If he only could buy them back again,  
The cow and the pig and the hen.

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## DEMOCRATIZATION OF SCIENCE

A book or article for the general reader -- a being, we may safely assume, with no great surplus of time, preparation, attention or initial interest -- must do three things. And these three things it should do whether it be a sermonette by Dr. Crane in four or five hundred words, or a popular treatise on plant fertilization, the labor problem, or the history of architecture, running through four or five hundred pages. First, it should enlist the reader's attention. This must not be assumed, but must be wooed or conquered by graciousness or by force. There are many ways of doing this, but still more ways of failing. I suspect that success comes when the writer manages forthwith to identify the reader with the enterprise and make him feel that it concerns him personally and individually. In story writing it is of course recognized that the reader must be immediately captured, but scientific popularizers are prone to set a poor trap with no bait. The sense of obligation in the matter of serious reading seems to be somewhat on the ebb. It can no longer be relied upon in face of the varied competition offered by the modern novel and the magazine and newspapers.

The second duty of the writer is to present his facts and information in terms and in an order which will be understood by the reader and will fit into his ways of looking at things. Lastly, the significance of the information in its bearing on the reader's thought and conduct and his judgments of others should be wisely suggested. While none of these three requisites can be safely neglected if one hopes to attract and profit large numbers of readers, it is to be noted that in writing for scientists or scholarly fellow professors only the second requisite holds. It would indeed scarcely be courteous to assume that the professional reader's interest need be artificially stirred; and it would transcend the bounds of scientific decorum to hint that the facts given had any direct bearing on human life and conduct.

It is amusing to note the many things which college instructors and the writers of text books include in their lectures and manuals which they themselves would not be able to recollect between times. What a considerable and beneficent revolution would take place in teaching and writing if teacher and writer should confine himself, at least in addressing beginners or laymen, to telling only such facts as play so important a part in his own everyday thinking that he could recall them without looking them up! It is a good rule for a writer to assume that nothing in his favorite subject that fails to interest him vividly and persistently is likely to interest the outsider who reads his book. The

specialist cannot, of course, expect others to be attracted by everything that has significance for him (for often meaning only comes with long application and much circumambient knowledge), and he certainly can hardly hope to impart effectively to others information which is barren to himself.

The story form is very congenial to the human mind, and the logic of a narrative or tale is always the best and surest form of appeal. The narrowly logical presentation is almost sure to miss its aim. Now that the historical and developmental approach has been discovered to be so fundamentally significant many essential observations in regard to man and his world can readily be cast into story form. (Almost everything has come to seem a story to me!)

I appreciate too fully the tremendous difficulties of carrying out any such proposed scheme of simplification to think that it can be readily done at odd moments. It will require special aptitude, strenuous application -- improbus labor, as the poet puts it. The scientist, philosopher and mathematician will urge that their speculations are simply out of range of the common man -- and so they are in many instances. Yet it is conceivable that even the intelligent outsider might see what calculus was about; he is quite capable of understanding why wonder is aroused in regard to the fourth dimension and relativity; or why the specialist gets excited over colloids. It is perhaps not so very essential that he should have a general notion of these particular branches of knowledge and research -- I have only cited them as the kind of things which are supposed to be hard to explain, even in a very general way, to a layman. It was Mill, I believe, who pointed out that a general idea is by no means necessarily a superficial idea. It may indeed be a very fundamental idea; and this scientists and philosophers seem to prefer to forget.

At present our books are not only too hard, they are also too long. I might mention a dozen excellent works published during the past year which may have sold in quantities ranging from two to three thousand copies. Had they been judiciously condensed to half or a third their length they might not only have been made twice or thrice as clear and effective, but might have reached tens of thousands of readers. But this wide availability and appeal could only have been achieved at the cost of much additional labor on the part of the writers. To produce good, little books, easy to slip into one's pocket or bag, would require a sort of red revolution among both authors and publishers. The sizes and weight of books, their paper and print, have their tradition like all else mortal.

As for magazine and newspaper articles, they often afford ingenious and promising examples of the humanizing of knowledge. But they are too short, unless the theme be a mere item or is treated in a very general fashion. They are ephemeral, easily mislaid, hard to dig out of their foreign setting. It is consequently, almost impossible to preserve them for future use. We are apt to read them hastily, as we do all periodical material, and then they are gone, leaving but a vague impression.

Moreover, those magazines which reach hundreds of thousands, not to say millions, of readers are largely supported by commercial advertising, which intrudes itself insolently into the so-called reading matter. The editors of such magazines have always to keep a weather-eye not only upon their subscription list but upon the main source of their revenue. They cannot allow any scientific information to reflect upon the interests and convictions of those who are by no means so absorbed in the democratization of scientific knowledge as they are in selling talc powder, soap, corsets, bathing suits, automobiles, or in the profits to be derived from some system of get-rich-quick psychology. Consequently, the editors of most popular magazines have a small herd of "sacred cows," so well bred as to be highly sensitive to any violation of the proprieties. Any impeachment of current business methods, any suspicion of immoral or irreligious tendencies, any indelicacy in stating natural processes, may offend their bovine susceptibilities, as every shrewd editor has learned to his cost.

I do not wish to exaggerate this element in the situation, but it is far more important than is commonly understood. It is surely unfortunate that as yet a great part of the inhabitants of the United States are getting all their notions of science and philosophy from under the suspicious noses of the sacred kine. -- From "The Humanizing of Knowledge," by James Harvey Robinson.

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#### Appreciated Good Stock

The stock salesman, after painting a beautiful word picture, said: "Now, Mr. Jones, you know this company hasn't got a dollar of watered stock in it. How much are you going to buy." "Young man," he said, "The next stock I buy is going to have four legs and I will water it myself." -- Forbes.

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If you are going to do anything permanent for the average man, you must begin before he is a man. The chance for doing good lies in working with the boy and not with the man. -- Theodore Roosevelt.

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## ANNUAL STATEMENT OF RESULTS

### FROM COOPERATIVE SOFT-PORK INVESTIGATIONS

(1) Pigs with initial weights of 100 pounds or more gaining at least 1-1/3 pounds daily on 9 or 12 parts ground corn and 1 part ground soybeans, with minerals in dry lot, through a period of 9 weeks or longer, have produced firm carcasses, in the majority of cases.

(2) Pigs with initial weights of 100 pounds or less gaining a maximum of 1 pound daily on 9 or 12 parts ground corn and 1 part ground soybeans, with minerals in dry lot, through a period of 15 weeks or less, have produced soft carcasses, in the majority of cases.

(3) Pigs with initial weights ranging from approximately 40 to approximately 70 pounds fed raw soybeans with corn and minerals in comparison with cooked soybeans with corn and minerals, both rations in dry lot, have produced carcasses of approximately the same degree of firmness at comparable finished weights.

(4) Pigs with initial weights of approximately 50 pounds gaining a maximum of 50 pounds on rations of rice polish or rice bran with tankage and minerals during an 8-week feeding period followed by a gain of at least 70 pounds on brewers' rice with tankage and minerals during a period of eight weeks or more have produced firm carcasses in the usual cases.

(5) Pigs fed low-fat rations varying widely in protein content, with dried blood the principal source of protein, have produced carcasses which were strikingly uniform in composition and firmness of fat. All rations were composed of hominy, dried blood, alfalfa meal, and minerals. Owing to the different proportions of dried blood and hominy used the nutritive ratio of the different rations varied from approximately 1:2 to 1:10.

(6) Experiments have shown that corn oil, peanut oil, and soybean oil when present in the ration, either naturally contained or as added oil, have a softening effect on the body fat which increases with increasing oil content in the ration. Cottonseed oil, on the other hand, has shown a distinct hardening effect when added to the extent of 4 per cent of the mixture to basal rations of corn or hominy with supplements. When the quantity of cottonseed oil is increased to 8 and 12 per cent, respectively, a progressive decrease in firmness results. The 8 per cent addition of cottonseed oil produced hard or medium-hard carcasses and the 12 per cent addition produced medium-soft or soft carcasses as compared to hard carcasses on the 4 per cent addition.

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## FATTENING LAMBS ON RAPE

by

H. A. Lindgren, Oregon Extension Service.

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The use of rape for fattening lambs has been used in western Oregon for years. During favorable seasons for growth, such pastures have been the source of very satisfactory profits to speculators who have gone through the country buying up the 50 to 60-pound thin lambs in the late summer and early fall.

The best of these rape fields that have been properly handled have carried anywhere from 5 to 10 lambs to the acre for a period of 30 to 40 days. The lambs have usually been put in good market condition in that time and have been sold. The rape has then furnished good feed for the breeding flock during the fall months.

During the past year, an interesting project in rape growing was undertaken on a reclaimed lake-bottom ranch in Klamath County, Oregon. The soil was of a peaty nature and very well sub-irrigated. The owner of some 900 acres decided on rape as a crop last spring and planted it in June. It came on ready for pasturing in August, and some 11,000 lambs were turned in during the flush season of growth. It was estimated that this 900 acres carried an average of 10,000 lambs for a 90-day period. The owner of the land received a cent a day per head.

Aside from some disease troubles among the lambs, which were not due to the rape, they made a very satisfactory gain and put on a very nice finish. The average daily gains were not secured. This venture has created much interest among the sheepmen of that section, and no doubt there will be an increase in acreage next season.

No particular difficulty was experienced from bloat. On this land the plants grew very large, and when lambs were turned in on the best of it the rape was tall enough to completely hide them.

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### Not Performing

"Are you the trained nurse mother said was coming?" asked four-year-old Bobby.

"Yes, I'm the trained nurse," she answered him smiling.

"Let's see some of your tricks," said he.

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# RESULTS OF IOWA PIG-CROP CONTEST, 1929

Name	County	Breed	Sows	Pigs farrowed	Pigs weaned	Pigs marketed	Pigs per sow	Av. Wt. per pig	Av. Lbs. pork per sow
		Boar - Sows	No.	No.	No.	No.	No.	Lbs.	Lbs.
		(D.J.							
Colville, Earl	Mahaska	D. J. -	10	11	84	84	8.4	255.2	2,398.8
		(P.C.							
Brown, Ear.	Fremont	P. C. - (Tam.	9	104	87	87	9.63	242.8	2,347.03
		(D.J.							
Verwers, C.	Decatur	S. P. - C.W.	8	89	73	73	9.12	243.5	2,322.5
Juhl, Wm.	Muscataine	D. J. - S.F.	9	89	84	84	9.33	219.6	2,049.1
Scallon, L.	Butler	P.C. - D.J.	10	97	84	82	8.2	228.	1,855.
Bycroft, Geo. & Son.	Adams	Durocs	10	--	75	73	7.3	253.	1,847.
Hoffman, Geo.	Ida	P.C. (D.J.	11	101	91	91	8.27	218.57	1,808
		(C.W.							
Christensen Bros.	Page	S.P.C.)							
		D. J. ) - S.P.C.	20	221	173	167	8.3	202.4	1,690.
Racek, Val	Story	Chester, W.	9	--	65	64	7.1	223.	1,583.3
O'Donnell, R. F.	Story	Pol. China	15	--	115	110	7.3	205.	1,496.5
Flynn Bros.	Washington	Durocs	12	97	97	94	7.83	190.	1,410.8
Edgington, Floyd	Cerro Gordo	S. P. C.	27	--	225	205	7.	172	1,204.
Flynn Bros.	Washington	Durocs	20	157	119	115	5.75	164.	923.

## THE MIND OF THE AVERAGE MAN

The educated person doesn't think just like the crowd man. He thinks differently. He plays a different game. He necessarily would shock and pain the crowd man if the latter understood that the whole thought process is different. The educated mind is one which takes a critical attitude toward fundamentals as opposed to the opinionated attitude of the ordinary man. Ignorance is opinionated. I used to think that ignorance was an innocent vacuum just longing to be filled with truth! I have been a public educator for many years and I have revised that judgment. The average man usually has about one idea. If he ever gets that idea into his head, he uses it as a watch dog to run out and bark at other ideas and scare them away. The average man uses his sublimities and his generalizations as devices to inflate his own ego. He is ashamed to admit that he was ever wrong because then he has to admit that he was inferior in that respect and that hurts his ego feeling. Therefore, you cannot make him admit that he was ever mistaken. So the average man is obsessed with the delusion of infallibility which prevents his learning. No one can be really educated until he somehow wins a victory over something in his own heart and gets the better of that infantile ego. That is essential in any educated life. -- From Adult Education and the Library, Vol. LV, July 1929.

### RECENT PUBLICATIONS

(Listing is made of recent publications devoted to subjects of more or less interest to animal husbandry extension workers. New bulletins of the United States Department of Agriculture are not included as copies of them are sent to members of this group as soon as available.)

"Some Comparisons of Methods of Fattening Western Lambs," by W. G. Kammlade, Illinois Experiment Station Bulletin No. 338.

"Fattening Lambs on Forage," by Foster and Etheridge, Missouri Extension Service Circular No. 218.

"A Study of Shropshire, Southdown, Native and Grade Sheep for Spring Lamb Production in Georgia," by Charles E. Kellogg, Georgia State College of Agriculture Bulletin No. 372.

"Production and Feeding of Lambs," by Rochford and Maynard, Colorado Extension Service Bulletin No. 295-A.

"Facts about Wool Prices," Ohio Extension Service Facts Series No. 11.

"Facts about Sheep and Lamb Prices," Ohio Extension Service Fact Series No. 10.

"Cattle Feeding" by Skinner and King, Purdue (Indiana) Experiment Station Bulletin No. 330.

"Beef Cattle Production in Mississippi," by George S. Templeton, Mississippi Experiment Station Bulletin No. 268.

"The Cooperative Marketing of Beef Cattle," Western Cattle Marketing Association, San Francisco, Calif.

"Cashing In on Beef," National Live Stock and Meat Board, Chicago, Ill.

"The Cost of the Scrub Bull", Industrial and Agricultural Development Department, Louisville and Nashville R.R. Co., Louisville, Ky.

"Horses, Tractors and Farm Equipment," by John A. Hopkins, Jr., Iowa Experiment Station Bulletin No. 264.

"Mule Feeding Experiments," by George S. Templeton,  
Mississippi Experiment Station Bulletin No. 270.

"A New Feeding Method and Standards for Fattening Young  
Swine," by John M. Evvard, Iowa Experiment Station Research  
Bulletin No. 118.

"Relative Economy of the Various Cuts of Pork," by Bull  
and Longwell, Illinois Experiment Station Bulletin No. 330.

"Type in Swine as Related to Rate and Economy of Gain and  
Quality of Pork," by Bull and Carroll, Illinois Experiment Sta-  
tion Circular No. 345.

"Why Hog Profits Vary," by John A. Hopkins, Jr., Iowa  
Experiment Station Bulletin No. 255 (Abridged).

"Anemia in Suckling Pigs," by E. B. Hart and others,  
Wisconsin Experiment Station Bulletin No. 409.

"Lessons for Pig Club Members," by Blacklock and Clayton,  
Florida Extension Service Bulletin No. 52.

"The 4-H Pig Club," Missouri Extension Service 4-H Club  
Circular No. 29.

"Farm Butchering of Hogs," by Fred H. Leinbach, Colorado  
Extension Service Bulletin No. 283-A.

"Pork on the Farm - Killing and Curing," by J. B. Francioni,  
Jr., Louisiana Extension Service Circular No. 119.

"A Program for Missouri Agriculture," Missouri Extension  
Service Project Announcement No. 28.

"Organizing the Corn-Belt Farm for Profitable Production,"  
By H. C. M. Case and others, Illinois Experiment Station Bulletin  
No. 529.

"Practices and Problems of Cooperative Live Stock Shipping  
Associations in Illinois," by R. C. Ashby, Illinois Experiment  
Station Bulletin No. 331.

"Losses in Shipping Ohio Livestock," by George F. Henning,  
Ohio Experiment Station Bulletin No. 438.

"Livestock - Commodity Prices in their Relation to Trans-  
portation Costs," Bureau of Railway Economics, Washington, D. C.  
Bulletin No. 35.